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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/502,036

07/20/2004

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075834.00271

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04/12/2006

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EXAMINER

SEVER, ANDREW T

ART UNIT

PAPER NUMBER

2851

DATE MAILED: 04/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/502,036

**Applicant(s)**

YANO, TOMOYA

**Examiner**

Andrew T. Sever

**Art Unit**

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS; WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,4 and 5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 4 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
- Paper No(s)/Mail Date 7/2004.

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 1, 4, and 5 are objected to because of the following informalities: the language is confusing at best. Appropriate correction is required.

Applicant should amend claim 1 to include commas where appropriate in the last paragraph. It is not clear whether applicant is claiming a plane for emitting waste light (the which is not used to form the projected image) or if applicant is claiming the plane facing the projection lens through which image light is past through to the projection lens.

With regards to applicant's claim 4 it has similar errors where it is not always clear where the particular light is coming from. Also should either claim that the aspect ratio is contracted or applicant should claim that it is reduced to alleviate confusion.

With regards to claim 5, it is dependent on claim 4 and should also be reviewed for similar errors.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Li (US 6,587,269)

4. Li teaches in figure 5 an image display apparatus comprising:

A spatial light modulation element (150) including a reflection electrode (inherent structure of a reflection LCD);

An illumination optical system (everything prior to 30) including a polarization element (40) and a light source (120) and serving to illuminate the spatial light modulation element by the light source through the polarization element;

A projection lens (160) for forming an image of the spatial light modulation element; and

A transparent optical block (50) disposed between the projection lens and the spatial modulation element,

Wherein the transparent optical block is adapted so that one surface includes a reflection plane surface (60) for bending, by internal surface reflection, an optical path of illumination light extending from the illumination optical system to the spatial light modulation element, and

Wherein the transparent optical block further includes an outgoing plane surface for emitting the remainder light of illumination light extending to the spatial light modulation element via the reflection surface among light beams emitted from the illumination optical system toward the outside of incident pupil of the projection lens (as nearly as can be understood the surface facing 160 is the outgoing plane, light that was not modulated would partially be emitted through plane 50.)

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Li (US 6,587,269) in view of Kanayama et al. (US 2003/0095213.)

Li teaches in figure 5 an image display apparatus comprising:

A spatial light modulation element (150) including a reflection electrode (inherent in reflective LCD panels);

An illumination optical system (everything prior to 50) including a polarization element (40), and integrator (20') in which plural elements are arranged in a matrix form, and a light source (120), and serving to allow illumination light emitted from the light

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source to be obliquely incident on the spatial light modulation element through the polarization element and the integrator to illuminate the spatial light modulation element;

A projection lens (160) for forming an image of the spatial light modulation element; and as nearly as can be understood,

A reflection pane surface (130?) disposed in the vicinity of the rear end portion of the projection lens in such a manner to suppress tilt angle with respect to the spatial light modulation element of illumination light beams emitted from the spatial light modulation element, and in such a manner that modulated light beams reflected from the spatial light modulation element are not crossed.

Li does not teach that the aspect ratio of respective elements of the integrator is different in a specific claimed manor then that of the spatial light modulation element. Kanayama teaches in paragraph 27 that by having the aspect ratio of the integrator (rod lens and prisms) less then that of the modulator along a tilt axis, the RGB band-shaped light beams are more efficiently introduced to the liquid crystal display reducing waste light and heat considerations. Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to se the aspect ratio of the integrator and light modulation element of Li in the manner taught by Kanayama in order to obtain a more efficient cost effective projector.

***Allowable Subject Matter***

7. Claim 5 as nearly as can be understood is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter: Claim 5 appears to teach that the angle of the optical axis of the illumination light is determined using a specific mathematical relationship. This was not found in the prior art and accordingly claim 5 would be allowable if it were written in independent form including all of the limitations of claim 4 and if it is corrected for proper grammar making it clear what specifically is being claimed.

***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US 6,454,417 to Takamoto et al. teaches in figure 3 a transparent optical block (2) that includes the claimed surfaces.

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US 2003/0031017 to Tsuji, which teaches two integrators (for example 250) one of which has its angle of the optical axis set based on  $\cos \theta$ .

US 2003/0151834 to Penn teaches in figure 9 an image display device that includes a transparent optical block (912).

US 6,908,197 to Penn teaches in figure 11 a projector with a transparent optical block and many of applicant's claimed surfaces.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Sever whose telephone number is 571-272-2128. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "W B Perkey", with a stylized flourish at the end.

AS

**William Perkey**  
**Primary Examiner**